Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

INDEX TO VOLUME XIV.

ALGEBRA (see Solutions of Problems in Algebra).
AVERAGE AND PROBABILITY (see Solutions of Problems).
BOOK REVIEWS—
  ALGEBRA. Slaught and Lennes' *High School Algebra*, p 191.
  ARITHMETIC. Fisk's *Foundations of Higher Arithmetic*, p. 40; *Wentworth's New Elementary Arithmetic*, p. 114.
  CALCULUS. *Chandler's Elements of the Infinitesimal Calculus*, p. 113; Johnson's *Treatise on the Integral Calculus*, p. 211; Osgood's *First Course in the Differential and Integral Calculus*, p. 190.
  GEOMETRY. Bush and Clarke's *Elements of Geometry*, p. 40; Robbin's *Plane Geometry*, p. 114; Failor's *Plane and Solid Gevmetry*, p. 191; Meyers, Wicks, etc., *Geometric Exercises for Algebraic Solution*, p. 212.
  MECHANICS. Jeans' *Theoretical Mechanics*, p. 114; Martin's *Text-Book of Mechanics*, p. 192.
  PHYSICS. Mellor's *Higher Mathematics for Students of Chemistry and Physics*, p. 113; D'Albe's *The Electron Theory*, p. 113; Mann and Twiss' *Physics*, p. 114; Mumper's *Text-Book in Physics for Secondary Schools*, p. 212.
  TRIGONOMETRY. Crawley's *Elements of Plane and Spherical Trigonometry*, p. 192.
  MISCELLANEOUS. Young's *Teaching of Elementary Mathematics*, p. 39; Homan's *Self-Propelled Vehicles*, p. 40; Wellcome's *Photographic Exposure Record and Diary*, p. 114.; Lambert's *Computation and Mensuration*, p. 192; Myers, Wicks, etc.' *First Year's Mathematics for Secondary Schools*, p. 212.
CALCULUS (see Solutions of Problems in Calculus).
GEOMETRY (see Solutions of Problems in Geometry).
ERRATA 162
MECHANICS (see Solutions of Problems in Mechanics).
MISCELLANEOUS (see Solutions of Problems in this department).

MATHEMATICAL PAPERS.

BLISS, GILBERT AMES. A Note Concerning Maxima and Minima of Functions of Several Variables 47–49
BROWN, J. S. The Trisection Problem 98–100
CARMICHAEL, R. D. Note on a Recent Problem in the MONTHLY 8–9
  On a Certain Quartic Curve which may Degenerate into an Ellipse 52–54
  On Dividing an Angle into Parts having the Ratios of Any Given Straight Lines 115–117
  On Constructing a Cube having a Given Ratio to a Given Cube 174–176
COREY, S. A. On a Set of Four Linear Associative Algebraic Units 19–22
DICKON, L. E. Note on the Volume of a Tetrahedron in Terms of the Coordinates of the Vertices 117–118
DRESDEN, ARNOLD. An Enample of the Indicatrix in the Calculus of Variations 119-126, 143–150
GALLATLY, WILLIAM. Notes on the Radical Axis and the Quadrilateral 218–222
GLENN, O. E. Notes on the Representation of the Ratio of Equations 163–170
GREENSTREET, J. W. Summation of Certain Infinite Series 24-26, 41–46
GRIFFIN, F. L. A Simple Example of a Central Orbit with More Than Two Apsidal Distances 199–201

GROVE, C. C. The Complete Pappus Hexagon 87–98
HALSED, GEORGE BRUCE. Remarks on the Report on Geometry of the Committee of the Central Association 67–68
HAWKSWORTH, REV. ALLEN S. Co-Planar and Co-Axial Triangles in Conics 63-67
KEMMERLING, HENRY. Note on a Formula for the Summation of Certain Power Series 215–217
MACINNES, C. R. Finite Planes with Less Than Eight Points on a Line 171–174
MCKINNEY, T. E. Conditions in Terms of the Invariants of the Quartic that its Four Distinct Root-Points be Concyclic 23–24
MILLER, G. A. Several Historic Problems which have not yet been solved 6–8
  Dividing by Zero 49–51
  Note on the Postulate that a Part is Equivalent to the Whole 100–101
  Library Aids to Mathematical Study 193–196
  Note on the Definitions of a Variable 213–215
MORITZ, ROBERT E. On the Symbolic Representation of Quotiential Coefficients of the Second Order 1–5
SAMSONOFF, J. Three Theorems on the Trisection of an Acute Angle 196–198
STEPHENS, R. P. Note on the Quartic 65–67
WHITE, E. E. On the Trisection of an Angle 151–152

SOLUTIONS OF PROBLEMS.—ALGEBRA.

Bonds, U. S. Panama Canal, etc. 279 70–73
Equations, given two simultaneous, etc. 275 27
If x_1, x_2, ..., x_n, be unequal and $f(x)$ a rational integral function, etc. 276 54, 103
If α, β, γ, δ, be the roots of the general quartic, etc. 277 54–57
Ingots of Precious Metal, etc. 273 9–10
Inequality, to prove a certain. 278 70
Find value of $2^{\frac{1}{2}} \times 2^{\frac{1}{3}} \times \ldots \times 1^{\frac{1}{1000}}$. 282 128
Find value of x, y, z, u, from four certain symmetric equations. 283 152
Find value of x, y, z, u, from four certain symmetric equations. 279 73–74
Note on Problem 266 201
Note on Problems 267 and 268 222–226
Remarks on solution of $x^2+y=7$, $x+y^2=11$. 89 68–70
Remarks on Problem 179, a certain solvable quintic 102–103
Sum the series $1^m+2^m+\ldots n^m$. 281 127

GEOMETRY.

Brocard's Ellipse, find equations of, etc. 309 74–75
Circle, through point within, draw any two chords, etc. 302 10–11
Circle, a variable, passes through a fixed point, etc. 312 129, 152–153
Circle of given radius, given area of segment of, to find length of chord. 315 177
Circles, given radii and distances between centers of three, etc. 317 202–203, 226–227
Construct mean proportional to two given sects without the use of a circle, etc. 318 226
Curve, Algebraic, of odd degree, symmetrical with respect to center, etc. 313, 129, 153–154
Locus, find, of point such that differences of squares of tangents from it to circles A, B, C, etc. 308 74
Pedal line of a triangle's circumcircle, etc. 303 27–28
Perpendicular from point in space, find length of. 306 57–58
Planes, family of, containing a common line, etc. 307 58–59

Parabolas, described by particles thrown from revolving wheel, to find locus of vertices of. 316 177–178
Radii, R and R_1 revolving uniformly in ratio of 2:3, etc. 305 29
Tangents at certain points of a certain locus, etc. 304 28
Triangle, to construct, having given base, vertical angle, and bisector of vertical angle. 310 75–96
Triangle, obtuse-angled at C; x, y, z are squares on its three sides, etc. 311 103–105
Triangle, bounded by lines expressed in trilinear coordinates, find area. 309, 129-130, 176–177

CALCULUS.

Catinary, osculating conic of, etc. 240 155–156
Cone, right circular, standing on elliptic base, etc. 234 77
Prove or disprove certain problem, Legendre's notation. 245 227–238
Differentiate a certain continued fraction. 241 179
Expression for remainder after n terms of a development of $f(x+a)$. 237 131–135
Integrals, to evaluate certain. 233 76
Latitude of place, and two parallel circles being given, etc. 235 78–79
Pedal, first negative, of an ellipse, etc. 234 77
Rectangle, greatest inscribed in an ellipse, etc. 230 12
Solve $y^2\dfrac{d^2y}{dx^2}+a\dfrac{dy}{dx}=bx$. 81 59
Solve $x\dfrac{\partial^2u}{\partial x^2}+y\dfrac{\partial^2u}{\partial x\,\partial y}=\dfrac{\partial u}{\partial x}$. 236 105–106
Solve (a) $(x+y^2)dx+(x^2+y)dy=0$,
(b) $(x+xy+y^2)dx-(x^2+xy-y^2)dy=0$. 238 135
Solve, $x^ry^s(mydx+nxdy)+x^\rho y^\sigma(\mu ydx+\nu xdy)=0$. 243 205–206
Sphere, to be formed into two cones of equal bases, etc. 242 180
Taylor's Series, derive, by use of formula for successive integration by parts. 246 228
Triangles, of all, inscribed in circle, to find which has greatest perimeter. 239 154–155
Volume common to two solids bounded by certain surfaces, find. 244 206–207

AVERAGE AND PROBABILITY.

Average length of random hole through (a) sphere, (b) cube. 188 183–185
Circle, through every point of circumference of, lines are drawn at random, etc. 179 108
Excursion, at a sea-side, for x men there are boats enough, for q men, etc. 181 109
Lines, out of n straight, whose lengths are 1, 2, ...n, etc. 182 109
Line divided into n parts by n—1 points taken at random, etc. 185 157–158
Line drawn at random across regular n-gon; what is chance crosses, etc. 190 230
Numbers, n in a box, etc. 180 108
Random lines cut given circle; what is chance they intersect within circle? 191 231
Sphere, cut by two random planes, to find chance that the planes intersect within sphere. 178 61–62
Triangle, two points taken at random in, and line through them divide triangle, etc. 160 33–34
Triangle formed by taking three vertices of regular n-gon at random, etc. 163 13–16
Triangle formed by drawing random lines through each of three random points in triangle, to find average area. 170 34–36
Triangle, point within, joined to each of the vertices, etc. 183 137–139

Square, through every point of sides straight lines are drawn across square, etc. 184 139–140

Triangle, lines drawn from vertices of through a random point, etc. 189 208–209

Square, through every point of, straight lines are drawn terminating in side, etc. 187 159, 181–183

Urn, contains 100 balls; $a=25$ are stamped, at random, with the letter A, etc. 186, 158–159

NUMBER THEORY AND DIOPHANTINE ANALYSIS.

Determine whether $(2x-1)/3=x^2+y^2$ has any positive integer solutions. 140 61

$2^{n-1}(2^n-1)$ is a multiply perfect number, etc. 139 60

Highest factor of a prime p contained in $m!$ is p^{m-s}, etc. 141 107

n an integer>1 and set $p=n(n-1)+1$. Required n integers, etc. 142 107–108

MECHANICS.

Cone, from a uniform circular, two planes cut off a portion, etc. 196 80–83

Particles slide from rest at the focus of a parabola, etc. 195 32–33

Planet, primary, and its satellite, revolve with uniform angular velocity, etc. 197, 106–107

Plane, perfectly rough inclined; time of sphere to roll down, etc. 201 157

Particles, a set of, have coplanar motion due to mutual attractions, etc. 204 208

Points, two, not in same plane or line, to find path of particle, etc. 205 229

Rigid square made of smooth wire; two small beads slide, etc. 206 229–230

Rods, three equal uniform, pointed at B and C, are hung from a point, etc. 202 181

Rods, three smoothly jointed, stand like a tripod, etc. 193 12–13

Spheres, three, of same material, rest upon a horizontal plane, etc. 198 136

Sphere of water is brought together by mutual attraction from an infirm state of diffusion, etc. 199 136–137

String, an elastic, is laid over top of an inclined plane, so as to remain at rest, etc. 200 156–157

Spherical bubbles of air are rising in water; find relation between radius and velocity. 188 180–181

Train, weight T, runs first eastward then westward in latitute λ, etc. 203 207

Wedge on rough inclined plane, etc. 194 31–32

MISCELLANEOUS.

Boxes, several rectangular, placed in rows with uniform intervals between them, etc. 166 83–86

Prove $\tan^{-1}n/(n+1)+\tan^{-1}1/(2n+1)=\frac{1}{4}\pi$. 165 83

Roots, find number of real, of equation $100\sin x=x$, etc. 164 16–17

Sum to n terms, $\sin\alpha\sin\beta+\sin(\alpha-\beta)\sin(\beta+\gamma)+\sin(\alpha-2\beta)\sin(\alpha+2\gamma)+$ etc. 168 140–141

NOTES AND NEWS 39, 62, 142, 162, 190